



Georgia Department of Transportation

Construction Engineering Inspection Training

General Provisions—Group 1

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Section 101: Definitions and Terms

Acceptance Plans:	A defined method of taking and evaluating measurements for the purpose of determining the acceptability of a lot of material or construction
Advertisement:	A public announcement, as required by law, inviting bids for work to be performed or materials to be furnished
Available Day:	Any calendar day exclusive of Saturdays, Sundays, and Legal Holidays on which the Engineer determines that the Contractor is not prevented from accomplishing at least 5 hours of productive work
Bridge:	A structure, including supports, erected over a depression or an obstruction, such as water, highway, railway, etc. and having a track or passageway for carrying traffic having an opening measured along the center of the roadway of more than 20 ft



Bridge Complete:	An entire bridge including its substructure and superstructure
Bridge Length:	The overall length of a structure measured along the center of the roadway between backs of the abutment backwalls or between ends of the bridge floor
Bridge Roadway Width:	The clear width of a structure measured at right angles to the center of the roadway between the bottom of the curbs or between the inner faces of the parapet or railing
Calendar Day:	Every day shown on the calendar beginning at 12:00 midnight
Chief Engineer:	The Engineer Executive appointed by the State Transportation Board, or other authority as may be provided by the law, and acting for the Department within the authority and scope of duties assigned

- Completion Date:** The calendar date by which the Contract shall be completed when such date is shown in the Proposal in lieu of the stipulation of a number of available days or calendar days
- Contract:** The written agreement between the Department and the Contractor setting forth the obligations of the parties thereunder, including the performance of the Work, the furnishing of labor and materials, and the basis of payment
- Contract Bond:** The approved form of security executed by the Contractor and his/her Surety which guarantees complete execution of the Contract and all Supplemental Agreements
- Contract Item:** A specifically described unit of Work for which a price is provided in the Contract
- Contract Time:** The number of Available Days or Calendar Days allowed for the completion of the Contract, including authorized time extensions
- Contractor:** The individual, firm, corporation, or combination contracting with the Department for performance of prescribed work
- Culvert:** Any structure under the roadway with a clear opening of 20 ft (6 m) or less measured along the center of the roadway



- Easement:** A right acquired to use or control property for a designated purpose
- Engineer:** The Chief Engineer of Georgia, acting directly or through a duly authorized representative

Equipment: All machinery, apparatus, and tools necessary for the proper construction and acceptable completion of the Work, plus the necessary repair parts, tools, and supplies for upkeep and maintenance



Direct Industry

Extra Work: An item or work not provided for in the Contract as awarded but found essential to the satisfactory completion of the Contract

Force Account: A method of payment for Extra Work when a Supplemental Agreement is not arrived at between the Engineer and the Contractor

Holiday Dates:

Date	Holiday
January 1	New Year's Day
3 rd Monday in January	King's Birthday
April 26	State Holiday
Last Monday in May	National Memorial Day
July 4	Independence Day
1 st Monday in September	Labor Day
2 nd Monday in October	Columbus Day
November 11	Veteran's Day
4 th Thursday in November	Thanksgiving Day
December 25	Christmas Day

Inspector: The Engineer's authorized representative assigned to make a detailed inspection of the Contract performance of any or all portions of the Work

Liquidated Damages: The fixed charges assessed against the successful Bidder or the Contractor for failure to execute the Contract or to complete the Contract within the Contract Time

Median: The portion of a divided highway separating the traveled ways for traffic moving in opposite directions

Minor Structures: Any structure not defined as a bridge

Notice to Contractors: A written Notice to soliciting Proposals, mailed to Contractors, suppliers, and others in the construction industry

Notice to Proceed: Written notice to the Contractor to proceed with the Contract Work

Pavement Structure: The combinations of subbase, base course, and surface course placed on a subgrade to support the traffic load and distribute it to the roadbed



Plans: The approved plans, profiles, typical cross sections, working drawings, and supplemental drawings, which show the locations, character, dimensions, and details of the Work

Prequalification: The procedure established and administered by the Department by virtue of which prospective Bidders are required to establish their responsibility and competence in advance of submission of Proposals

Project: The specific section or sections of the transportation system together with all appurtenances and construction to be performed under the Contract

Proposal: The offer of a Bidder to perform the Work and furnish the labor and materials at the quoted price

Right-of-Way: A general term denoting land, property, or interest therein acquired for highway and its appurtenant structures

Roadbed: The graded portion of a highway within top and side slopes

Roadway: The portion of a highway within the limits of construction



Salvaged Material: Material having value that is to be removed, preserved, or stockpiled as directed for later use by the Department

Special Provisions: Additions or revisions to the Standard or Supplemental Specifications applicable to an individual project

Specifications: A general term applied to all directions, provisions, and requirements pertaining to performance of the Work

Station: When used as a term of measurement, will be 100 linear ft (1 km) measured horizontally

Structures: Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, building sewers, service pipes, underdrains, foundation drains, and other features that may be encountered



Subcontractor: Any individual, firm, corporation, or combinations of which the Contractor with the written consent of the Department sublets any part of the Contract

Substructure: All of that part of the bridge structure below the bearings of simple and continuous spans, skewbacks of arches and top of footings of rigid frames, including backwalls, wingwalls, and wing protection railings

Superintendent: The Contractor's authorized representative directly and solely responsible for the supervision and direction of the Work

Superstructure:	The entire bridge structure except the substructure
The Work:	The furnishing of all labor, materials, equipment, superintendence, and other incidentals necessary or convenient to the successful completion of the Project
WECS:	(Worksite Erosion Control Supervisor) An employee of the Prime Contractor designated to initiate, install, maintain, inspect, and report the condition all erosion control devices on the project
WTCS:	(Worksite Traffic Control Supervisor) A designated, qualified employee of the contractor responsible for selecting, installing and maintaining all traffic control devices on the project

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Section 102: Bidding Requirements and Conditions

Prequalification of Bidders

- The Bidder shall be prequalified with the Department before submitting a bid in excess of \$2,000,000
- Aggregate total amount a nonprequalified Bidder may have under Contract shall not exceed \$4,000,000
- Bidders intending to consistently submit Proposals shall prequalify at least once every two years

Competency of Bidders

- The Department may limit the amount of work awarded to any Contractor
- The Department may limit aggregate amount of work awarded to any nonprequalified Contractor
- The Department may refuse Contractor proposals to bid on additional work if the Contractor is behind schedule

Contents of Proposal Forms

- The Department will make a prospective Bidder a Void for Bidding Proposal Form
- The Proposal Form will state the location and description of the contemplated construction
- The Proposal form states the time in which the work must be completed, the amount of Proposal Guaranty, and the date of Proposal opening
- The Proposal Form also includes any special provisions or requirements that vary

VOID FOR BIDDING

PROPOSAL

DO NOT UNFOLD THIS BOOKLET...ENTER ALL REQUIRED INFORMATION
----- EITHER BY HAND OR BY STAMP.

DATE OF OPENING : November 18, 2011 CALL ORDER : 001

CONTRACT ID : R34161-11-000-0

FOR	PROJECTS AND CONTRACT NO.
000490-01000	CRMS-000-00 (490)
COUNTY : CHATHAM	

CODE _____ ISSUED BY:

1. _____

2. _____

3. _____

GDOT

Interpretation of Estimates

- Quantities are for work to be performed and materials to be furnished to complete the construction
- The Department does not guarantee quantities indicated on the plans or given in the Proposal
- The Contractor shall not plead deception or misunderstanding due to variation in quantities
- Payment to the Contractor is to be made only for actual quantities performed in accordance with plans and specifications

Examinations of Plans, Specifications, Special Provisions, and Worksite

- The Bidder is expected to examine the proposed worksite, proposal, plans, specifications, supplemental specifications, special provisions, and contract
- Proposal submission shall be considered prima facie evidence that the Bidder has made such examination and is satisfied as to conditions encountered when performing the work
- Bidders must interpret subsurface data available, including extent of materials to be excavated, graded, or driven through

Proposal Preparation

- The Bidder shall submit the Proposal on the form furnished by GDOT
- Blank spaces on the Proposal shall be filled in correctly for each Pay Item
- The Bidder shall show products of the respective Unit Prices and quantities
- The Unit Price will govern and the Bid will be recalculated in the event of discrepancy of any figures
- The Unit Prices shall be entered for only one alternate for Alternate Items



Bid Submission

- Hand-delivery of the electronic bid to the Department should be to the place specified in the Notice to Contractors
- Electronic bid submission can be by Internet or Bid Express™
- Electronic bids shall be prepared through use of a computer-controlled printer
- The Bidder shall sign the electronic bid in the appropriate areas
- Zero (0) is considered to be a valid bid
- Proposals shall be submitted in a sealed envelope unless submitted electronically on the Internet

Rejection of Proposals

Proposals may be rejected as irregular if:

- Their consideration is conditioned upon acceptance or rejection of Proposals submitted by the same Bidder
- They are not properly signed
- The Department believes collusion exists among bidders
- The Department receives more than one Proposal from any person, partnership, or corporation under the same or different names on any Project
- Unit Prices are obviously unbalanced
- Omissions, alterations of form, additions, or conditions exist
- The Bidder has not paid or satisfactorily settled all legal debts due on other Contracts
- They were created by nonprequalified Bidders
- They fail to list Disadvantaged Business Enterprises (DBE)

Withdrawal or Revision of Proposals

- Any Bidder may withdraw a Proposal before the advertised cutoff time
- The Bidder must use the DOT Bid Proposal Withdrawal Form
- Any Bidder may submit a Bid change before the advertised cutoff time

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Section 103: Award and Execution of Contract

Consideration of Proposals

- If a discrepancy between the Unit Bid Prices and extensions exists, Unit Bid Prices will govern
- Until the final Award of the Contract, the right will be reserved to reject any and all Proposals
- If the low bidder discovers an obvious error prior to awarding of a contract, a request may be made to allow Bid withdrawal

Award of Contract

- The Contract is awarded to the lowest reliable Bidder whose Proposal met all prescribed requirements
- The Contract is awarded 50 calendar days after opening of Proposals
- Single and multiple Project proposals are publicly opened and read
- No awarded Bids will be negotiated or adjusted
- Award to successful Bidder is made public through publication of Award Announcement

The Department reserves the right to cancel the Award of any Contract any time before the execution of the Contract

Contract Bid Requirements

Contractor Location	Requirements
Georgia Resident	<ul style="list-style-type: none">• Performance bond in full penal sum of Contract and payment bond in amount equal to 100% of final penal sum of Contract
Nonresident Contractor	<ul style="list-style-type: none">• Performance bond in full penal sum of Contract and tax bond of 10% of full penal sum of Contract• Aggregate amount of bonds shall be 210% of full Contract sum

Execution and Approval of Contract

- The Contract shall be signed by the successful Bidder and returned within 15 calendar days after letter date
- No Contract shall be considered as effective until it is fully executed by all parties

Failure to Execute Contract

- Failure to execute the Contract within 15 calendar days after the letter is transmitted is just cause for cancellation of Award

Failure to execute the Contract within 15 calendar days after the letter
is transmitted is just cause for cancellation of Award

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Section 104: Scope of Work

Intent of Contract

- The Contractor provides construction and completion in every detail of the work described in the project description.
- The Contractor shall furnish labor, materials, equipment, tools, transportation, and supplies required to complete the work

Alteration of Plans or Character of Work

- The Department reserves the right to make changes such as increasing or decreasing quantities
- Increases or decreases and alterations will not invalidate the Contract
- When alteration involves a substantial change in Contract, a Supplemental Agreement shall be executed before work is started
- All work shall be performed as directed by the Specifications

Changes made by the Engineer will not be considered a waiver of provisions of the Contract

- The Engineer may increase or decrease quantities of any/all Pay Items without changing the Unit Price
- Changes cannot decrease the original Contract amount by more than 20%
- Engineer has the authority to extend or reduce total length or cost of Project by at most 20%
- An Extension Agreement will be executed if the Project length is extended

Maintenance During Construction

- The Contractor shall maintain the Project from the beginning of operations until Maintenance Acceptance or Final Project Acceptance
- The Contractor shall constitute continuous and effective work prosecuted day by day with adequate equipment and forces to complete the construction project
- Maintenance includes signing, pavement markings, and traffic control devices as outlined in the *Manual on Uniform Traffic Control Devices*

- The Contractor shall maintain existing guardrail, signs, pavement, pavement markings, bridge handrail, and other safety appurtenances in good condition
- The Contractor shall not allow vegetative growth to obstruct signs, delineation, traffic movements, or sight distance
- The Contractor shall remove debris at 6-month (maximum) intervals
- The Contractor shall assume responsibility of damage to the work until Final Acceptance



The Engineer will be the sole judge of work to be classed as Special Maintenance (e.g., slope stabilization work)

Detours

- The Department is responsible for construction and maintenance outside of the right-of-way
- Payment for construction maintenance and removal of detour bridges/roads shall be by Bid Item

Delays to Traffic

- Two-way traffic shall be maintained at all times
- When approved, the Contractor must provide necessary flaggers to direct traffic

Use of Project Materials

- Salvaged materials shall remain the property of the Department
- Usage of materials shall be directed by the Engineer
- The Contractor shall not excavate or remove material without authorization from the Engineer
- The Contractor shall not make any claim upon the State for damages or loss for Project materials
- The Department does not warrant or guarantee existence, quality, or quantity of materials



Final Clean Up

- Highway borrow pits and the construction site shall be cleaned of rubbish, excess material, temporary structures, and equipment
- Weeds and high grass shall be cut and disposed of
- Assure no disposal of construction materials on the right-of-way by the Contractor
- Temporary buildings or other structures built for the Contractor's use and located within view of the right-of-way shall be removed and disposed of as directed



Value Engineering Proposals

These guidelines apply to cost reduction proposals initiated and developed by the Contractor. Proposals must provide the following:

- A product comparable to the original design at lower cost and/or improved quality
- A description of the difference between the existing Contract requirement and the proposed change
- A required detailed estimate of the cost of performing the proposed work
- Prediction of any effects of proposed changes on the Department
- A life-cycle cost analysis

For accepted Value Engineering Proposals, a supplemental agreement will be established that defines the necessary modifications and provides for adjustment in contract prices, and divides the savings such that 50% of the savings goes to the contractor and 50% of the savings go to the Department.

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Section 105: Control of Work

Authority of the Engineer

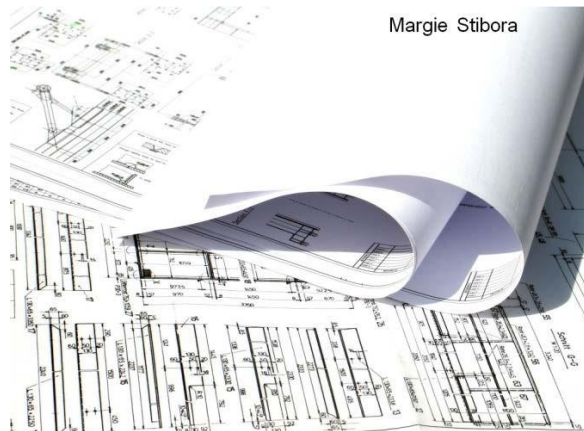
- The Engineer will decide all questions that may arise as to quality and acceptability of materials furnished, work performed, and rate of progress of the work
- The Engineer will determine quantities of several kinds of work performed and materials furnished
- Examples include Area Engineer, Assistant Area Engineer, and Project Manager Engineer

Plans and Working Drawings

- Plans will show details of structures, lines, grades, and typical cross sections of the roadway
- Plans will be supplemented by working drawings to adequately control the work
- All working drawings must be approved by the Engineer

Conformity with Plans and Specifications

- Work performed and materials furnished shall conform reasonably close with lines, grades, cross sections, dimensions, and material requirements



- Plan dimensions and Contract specification values are considered as target values to be achieved
- The purpose of tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable

Governing Order of Documents:

1. Special Provisions Project
2. Plans including Special Plan Details
3. Supplemental Specifications
4. Standard Plans including Standard Construction Details
5. GDOT Standard Specifications

Calculated dimensions will govern over scaled dimension.

Contractor shall take no advantage of any apparent error or omission in Plans or Specifications

Contractor Cooperation

- The Contractor shall be accessible to the Engineer at all times
- The Superintendent shall have full authority to execute orders or directions of the Engineer without delay

Project Personnel	Authority and Duties
Resident Engineer	<ul style="list-style-type: none">• Engineer designated by the Department to be the direct representative of the Chief Engineer• Has immediate charge of engineering details of each construction Project, and is responsible for Contract administration
Inspector	<ul style="list-style-type: none">• Authorized to inspect all work done and materials furnished• Not authorized to alter or waive provisions of the Contract

Inspection of Work

- All materials and each part of detailed work shall be subject to inspection by the Engineer
- The Engineer shall be allowed access to all parts of the work
- Upon the Engineer's request, the Contractor shall remove or uncover such portions of finished work at any time before Final Acceptance
- Any work done or materials used without supervision or inspection by authorized Department representative may be ordered removed and replaced



Removal of Unacceptable and Unauthorized Work

- All work not conforming to Contract requirements is considered unacceptable

No work shall be done without lines and grades having
been given by the Engineer

- Unacceptable work shall be removed immediately and replaced in acceptable manner

Final Inspection and Acceptance

- The Engineer will determine if the Project is ready for Final Inspection
- The Engineer will schedule the Final Inspection
- The Engineer will provide the Contractor with a written punchlist with necessary instructions
- The Contractor shall immediately comply and execute the punchlist

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Section 106: Control of Materials

Materials are not considered as finally accepted until all tests of materials taken from the finished work have been completed and evaluated

Construction Materials

- The Contractor shall furnish formal written invoices from materials suppliers
- Invoices shall show date shipped, quantities, and unit prices
- When the Contractor's quality control procedures do not achieve the desired objective, operations shall be suspended until satisfactory results are obtained
- Material not conforming to requirements of specifications will be considered as unacceptable

Samples, Tests, Cited Specifications

- All materials will be inspected, tested, and approved by the Engineer before incorporation into the work
- Samples are taken by a qualified representative of the Department (see the *Sampling, Testing, and Inspection Manual*)
- Copies of tests will be furnished to the Contractor's representative upon request
- The Contractor shall be responsible for quality of construction and materials incorporated



- The Department will monitor the Contractor's Quality Assurance Acceptance Program to verify test accuracy
- The Engineer may accept the manufacturer's certification from the Contractor

Storage of Materials

- Material may be stored on the right-of-way when approved by the Engineer
- Private property shall not be used for storage purposes without written permission of the owner



- Materials shall be stored to assure the preservation of their quality for the work
- All storage sites shall be restored to their original condition by the Contractor
- All materials shall be handled to preserve their quality for the work

The Contractor may be required to provide a field laboratory on the Project

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Section 107: Legal Regulations and Responsibility to the Public

Laws to be Observed

- The Contractor shall keep fully informed and comply with Federal and State laws, local laws, ordinances, codes, and regulations
- The Contractor shall procure permits and licenses; pay charges, taxes, and fees; and give all notices necessary

Contractor shall plan, coordinate, and prosecute work such that disruption to personal property and business is minimized

Traffic Control

- The Contractor shall conduct the work as to assure the least possible obstruction of traffic
- Traffic whose origin and destination is within the Project's limits are to be provided ingress and egress
- The Contractor shall furnish, install, and maintain necessary barricades, signs, and other traffic control devices



Use of Explosives

- The Contractor shall exercise utmost care not to endanger life or property
- The Contractor is responsible for any damage resulting from transportation, storage, use, and control of explosives
- Explosives and detonators shall be stored in separate storage facilities in separate areas
- Whenever electric detonators are used, radio transmitters shall be turned off within a radius of 500 ft (150 m)
- Appropriate signs shall be placed to give warning to anyone driving a vehicle equipped with two-way radio



Erosion and Silt Control

- The Contractor shall control erosion and silting of rivers, streams, lakes, reservoirs, and other bodies of water.
- The Contractor shall carry out construction of drainage facilities in conjunction with clearing and grubbing, and earthwork operations



- Pollutants (chemicals, fuels, lubricants, raw sewage, and other harmful waste) shall not be discharged into or alongside rivers, streams, and impoundments, or into natural or manmade channels

Load Restrictions

Within Project Limits	<ul style="list-style-type: none"> • No hauling equipment loaded beyond the weight limits is allowed on new or existing pavement structures • Axle loads and gross weight limits are evaluated in accordance with Georgia law • Damage caused by equipment is repaired by the Contractor
Outside Project Limits	<ul style="list-style-type: none"> • No vehicle shall carry loads in excess of that specified by Georgia law • <u>Maximum total gross weight is 56,000 lbs (25,400 kg) on County Roads</u>

Opening Sections of Project to Traffic

- The Engineer may direct that a bridge or section of roadway should be opened to traffic
- Necessary repairs or renewals made on a section of roadway or bridge should only be opened to traffic after instructed by the Engineer

Contractor's Responsibility for Utility Property and Services

- The names of Utility owners and location of facilities shall be on the plans
- The Contractor shall cooperate with Utility owners
- In the event of interruption of utility service, the Contractor shall promptly notify the utility and cooperate in restoration of service

Acquisition of Right-of-Way

- Rights-of-way for the Project will be obtained by the Department in coordination with local governments
- The Contractor's access to portions of the right-of-way may be restricted

Environmental Considerations

- Erosion control measures shall be installed prior to clearing and grubbing
- Particular care shall be exercised along stream buffers, wetlands, and open waters
- Construction equipment shall not cross streams, rivers, or other waterways
- Construction activities within wetland areas are prohibited



- The Engineer will inform the Contractor in writing as to a grant or denial of environmental clearance

Borrow and Excess Material Pits

- Specific written environmental clearance from the Engineer is required for sites not included in plans as excess material or borrow areas
- The Department will not begin studies on such sites before a Notice to Proceed is issued
- An official Notice to Proceed is required (not a Conditional Notice to Proceed)

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Section 108: Prosecution and Progress

Subletting of Contract

- No Subcontractor shall commence work in advance of the written approval of the Subcontract by the Department
- Each Subcontractor shall be prequalified or registered with the Department
- Subcontract agreements between the Prime Contractor and Subcontractor shall be in writing
- The following items are designated Specialty Items which may be deducted from the total cost before computing the maximum amount of work required to be performed by the Prime Contractor:

General transportation

Grassing items

Fencing items

Highway lighting items

Sign items

Guardrail items (except bridge handrail)

Utility items

Comfort and convenience items in rest areas

Landscaping items

Pressure grouting, slab removal and replacement

Permanent traffic markings

Signal systems

Railroad track work above sub-ballast

Floor covering

Drilled caisson foundations

Raised flooring

Landscaping

Security system

Fire protection

Gutters

Painting

Insulation

Doors

Elevators

Building contract

Structural steel

Plumbing

HVAC

Electrical

Telephone service

Masonry

Glass work

Drywall

Ceiling installation

Roofing

Carpentry



Prosecution and Progress

- The Contractor will provide materials, equipment, and labor to guarantee the Project's completion
- Each work activity is expected to continue from the date it is begun until completed

- Contract Time as shown in the Proposal is the allowable time
- At least 48 hours before commencing work, the Contractor shall notify the Engineer of intention to begin

Contractor Methods

- If the Contract specifies certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer
- The Contractor may request authority from the Engineer to use another method not specified in the Contract



Contract time can be in available day contracts, calendar day contracts, and completion day contracts

Liquidated Damages

The following deductions are specified in each individual Contract:

- *Deduction from Partial Payments:* Liquidated damages are deducted from periodic partial payments
- *Deduction from Final Payment:* Liquidated damages will be deducted from the final payment to the Contractor

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Section 109: Measurement and Payment

Measurement and Quantities

- Longitudinal measurements for area computations are made along the surface
- Transverse measurements for area computations will be the dimensions shown on the plans
- Structures will be measured according to lines shown on the plans
- All items which are measured by the linear ft (linear m) are measured parallel to the base or foundation upon which such structures are placed
- Volumes of excavation are calculated using the average end area method

Measurement of Bituminous Materials

- The Department prefers measurement of bituminous materials by weight, whenever practical.
- Weigh tank trucks of bituminous material on scales previously inspected by the Department



- Alternatively, weigh bituminous material by extraction tests made in the field laboratory
- Use the amount of bituminous material as shown on the printed ticket
- Convert the tack coat measurement to tons (megagrams) and deduct it from the bituminous material quantities

Extra Work

Supplemental Agreement

A supplemental agreement which stipulates the extra work to be done will be agreed upon in writing by both parties prior to extra work being performed.

Force Account

When no agreement is reached for Extra Work done at Lump Sum or Unit Prices, such work may be authorized by the Department to be done on a Force Account basis

Payment

Payment for force account work is divided into:

- Labor
- Bond, Insurance, and Tax
- Materials
- Equipment
- Miscellaneous
- Compensation

Note: Payment for specific construction items is listed at the end of each training course

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Section 149: Construction Layout

Includes placing, replacing, and maintaining construction layout points

Contractor Submittals

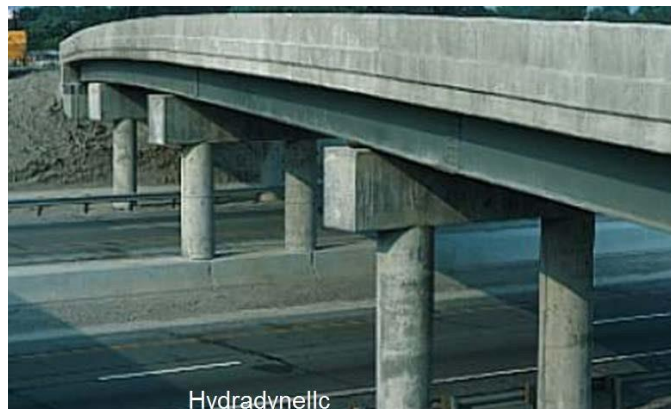
Submittal	Notes
Project construction records	Includes survey records, bound field notes, computer printouts of Project's construction
Survey documents	Furnish Engineer with copies that relate to construction layout
Drainage structure sketches	Provide inlet and outlet ends of proposed drainage structures for at least 100 ft (30 m) in existing ditch line or stream bed
Bridge layout sketches	Furnish layout sketch before staking on bridges Verify plan elevations for bridge bearing seats on substructure
Wall layout sketches	Submit to Engineer who verifies the wall will fit in final field conditions

Preparation

- Ensure plan dimensions, alignment, and elevations are compatible with field conditions
- Ensure alignment tie-ins by coordinating construction layout with other Contractors

Widening and Reconstruction

- Take 3-point levels of pavement throughout length to be retained
- Prepare graphic grade plot that “best fits” existing pavement
- Furnish data to the Engineer before beginning widening and reconstruction
- *Bridges:* Verify existing elevations and dimensions and confirm required new cap elevations



During Construction

- Verify the plan elevations and bent layout
- *Establish centerline:* (1) Establish the monuments and reference points, (2) Establish the horizontal and vertical alignment, and (3) Modify the plan horizontal and vertical alignment
- Verify the accuracy of bench mark(s)
- Flag the in-place survey control monuments
- Set the line and grade stakes needed to construct the Project
- Stake the centerline control alignments (accuracy of 1:5000)
- Provide graphic sketches of super-elevation runout on curves and tie-in of ramps



- Maintain the stakes after construction has begun
- Furnish the layout and clean traffic markings
- Provide the bridge construction layout

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